



# Antipsychotic Medicines for Children and Teens

A Review of the Research for Parents and Caregivers



## Is This Information Right for the Child I Care For?

### Yes, if:

- A doctor has said your child (ages 1 through 18) has one of these conditions:
  - Schizophrenia and related psychosis
  - Bipolar disorder
  - Developmental disorders, including autism, Asperger's syndrome, and other autism spectrum disorders
  - Tourette's syndrome
  - Attention deficit hyperactivity disorder (ADHD)
  - Disruptive behavior disorders, including oppositional defiant disorder and conduct disorder
- A doctor has suggested one of the following antipsychotic medicines as part of the treatment:
  - Aripiprazole (Abilify®)
  - Clozapine (Clozaril®, FazaClo®)
  - Olanzapine (Zyprexa®)
  - Paliperidone (Invega®)
  - Quetiapine (Seroquel®)
  - Risperidone (Risperdal®)
  - Ziprasidone (Geodon®)

Note: Antipsychotic medicines can have serious side effects. Depending on your child's condition, the doctor may first suggest a different type of medicine before suggesting an antipsychotic medicine. The doctor may also suggest a non-medicine treatment.

### No, if:

- A doctor has not said your child has one of these conditions and has not suggested an antipsychotic medicine as part of your child's treatment.

---

## What will this summary tell me?

This summary discusses using antipsychotic medicines to treat psychiatric conditions in children. It explains what medical research says about the benefits and possible side effects of these medicines when taken by children. This summary does **not** discuss other medicines to treat psychiatric conditions or non-medicine treatment options. It can help you talk with your child's doctor to decide if an antipsychotic medicine is right for your child.

---

## Where does the information come from?

Researchers funded by the Agency for Healthcare Research and Quality (AHRQ), a Federal Government research agency, reviewed 81 studies published between January 1987 and February 2011 on antipsychotic medicines in children and wrote a report of the results. The report was reviewed by clinicians, researchers, experts, and the public. You can read the report at [www.effectivehealthcare.ahrq.gov/pedantipsych.cfm](http://www.effectivehealthcare.ahrq.gov/pedantipsych.cfm).



# Understanding Antipsychotics

## What are antipsychotic medicines?

Antipsychotic medicines were made to help people who have psychosis, but these medicines are now used for many different conditions in children and adults. They work by affecting the way certain chemicals act in your brain. Taking these medicines does not mean that your child has psychosis.

Antipsychotic medicines are divided into two “generations.” Doctors often refer to these as “older” (also called “typical”) antipsychotics or “newer” (also called “atypical”) antipsychotics.

## Antipsychotics

Older Antipsychotics	
<i>Drug Name</i>	<i>Brand Name</i>
Chlorpromazine	Thorazine®
Haloperidol	Haldol®
Pimozide	Orap®
Newer Antipsychotics	
<i>Drug Name</i>	<i>Brand Name</i>
Aripiprazole	Abilify®
Asenapine*	Saphris®*
Clozapine	Clozaril®; FazaClo®
Iloperidone*	Fanapt®*
Lurasidone*	Latuda®*
Olanzapine	Zyprexa®
Paliperidone	Invega®
Quetiapine	Seroquel®
Risperidone	Risperdal®
Ziprasidone	Geodon®

\*These medicines were not studied in this report.



Doctors sometimes prescribe these medicines for many conditions other than psychosis. Antipsychotics cannot cure these conditions. They are used to reduce symptoms and improve quality of life. These conditions include:

- Pervasive development disorders (including autism, Asperger's syndrome, and other autism spectrum disorders)\*
- Tourette's syndrome
- Attention deficit hyperactivity disorder (ADHD)
- Disruptive behavior disorders (including oppositional defiant disorder and conduct disorder)

\*Antipsychotics are used to help children with autism be less irritable and aggressive.

Depending on your child's condition, the doctor may first suggest a different type of medicine before suggesting an antipsychotic medicine. The doctor may also suggest a non-medicine treatment, such as talking with a therapist.

## What does research say about how well antipsychotic medicines work?

Overall, newer antipsychotics work to improve the symptoms of some psychiatric conditions in children.

Researchers found that:

- Antipsychotics improve the symptoms of schizophrenia.
- Olanzapine (Zyprexa®), risperidone (Risperdol®), and clozapine (Clozaril® or FazaClo®) appear to work about the same to improve symptoms of schizophrenia. There is not enough research to know how well the other antipsychotics work when compared with each other.
- Newer antipsychotics appear to work better than older antipsychotics to treat the symptoms of schizophrenia, but there is not enough research to know this for certain.
- Over time, newer antipsychotics improve symptoms of bipolar disorder.
- In children with bipolar disorder, newer antipsychotics do not reduce suicidal thoughts or the suicide rate.
- Olanzapine (Zyprexa®) and risperidone (Risperdol®) appear to work better than the older antipsychotic haloperidol (Haldol®) to help children with autism be less irritable and aggressive, but there is not enough research to know this for certain.
- Risperidone (Risperdol®) and ziprasidone (Geodon®) work to improve tics in children with Tourette's syndrome.
- Risperidone (Risperdol®) works to improve symptoms of ADHD and disruptive behavior disorders.

The research studies were done on children with only one diagnosed condition. The research cannot tell us how well antipsychotics work for children who are diagnosed with more than one condition.

## What are the possible side effects of antipsychotic medicines?

The U.S. Food and Drug Administration (FDA) lists the following possible side effects of antipsychotic medicines.

Newer antipsychotics can cause:

- Weight gain. It is important to monitor your child's weight while he or she is taking an antipsychotic medicine.
- An increase in the risk of high blood levels of cholesterol or triglycerides (a type of fat).
- An increase in the risk for high blood sugar levels and diabetes.
- Low blood pressure.

Aripiprazole (Abilify®) and quetiapine (Seroquel®) may increase the risk of suicidal thoughts in children.

Both older and newer antipsychotics can cause:

- Sleepiness.
- Uncontrollable movements, such as tics and tremors.
- Dizziness, headaches, and dry mouth.
- An increase in the level of a certain hormone in the body, called prolactin. Increased prolactin may delay sexual maturity in both boys and girls. It can cause abnormal monthly periods or stop monthly periods in teenage girls. It can also cause abnormal breast development in both girls and boys.
- A possibly life-threatening reaction called “neuroleptic malignant syndrome,” although this is rare. Symptoms include a high fever, sweating, wide changes in blood pressure, and muscle stiffness.

The FDA warns that clozapine (Clozaril® or FazaClo®) can cause a serious blood condition involving a severely lowered white blood cell count in some people. Your child's doctor will need to perform blood tests often to monitor your child's white blood cell count while taking this medicine. Clozapine can also cause seizures or inflammation of the heart.

## What does research say about the side effects of antipsychotic medicines and how they compare?

A few studies found the following results, but there is not enough research to know for certain:

- More children appeared to gain weight when taking olanzapine (Zyprexa®) than those taking aripiprazole (Abilify®) or risperidone (Risperdal®).
- More children appeared to have increased cholesterol and triglycerides when taking olanzapine (Zyprexa®) than those taking aripiprazole (Abilify®), quetiapine (Seroquel®), or risperidone (Risperdal®).
- Fewer children appeared to gain weight and have increased cholesterol when taking aripiprazole (Abilify®) than those taking quetiapine (Seroquel®).
- More children appeared to have an increased level of the hormone prolactin when taking risperidone (Risperdal®) than those taking olanzapine (Zyprexa®).
- Fewer children appeared to gain weight when taking the older antipsychotic haloperidol (Haldol®) than those taking newer antipsychotics.
- Children taking the older antipsychotic haloperidol (Haldol®) appeared to have a higher risk for developing uncontrollable movements, such as tics and tremors, than those taking newer antipsychotics.
- There may be other long-term side effects of antipsychotic medicines that were not detected in the research studies, such as developing high blood sugar levels and diabetes.





### What should I think about when deciding?

There are several things to consider when deciding if an antipsychotic medicine is right for your child. Only you and your child's doctor can decide whether any medicine's ability to help is worth the risk of a serious side effect. Each child responds differently to different antipsychotic medicines. The doctor may try several medicines before finding the right one. It is also important to talk with your child's doctor about other options for treating your child's condition, such as other medicines and non-medicine treatments.

You and your child's doctor should discuss:

- How well medicines other than antipsychotics might work to help your child's symptoms.
- What non-medicine treatment options are available and if they might help your child.
- The benefits of taking an antipsychotic or adding one to treatment.
- Which antipsychotic medicine might work best for your child based on his or her age and condition.
- The possible side effects from taking an antipsychotic, especially weight gain, drowsiness, and uncontrollable movements like tics and tremors.
- The risk for a serious side effect.
- Ways to help you notice side effects so they can be treated or so the medicine can be changed.
- Which treatment option best fits your likes, dislikes, and values.
- The cost of each medicine.

## What are the costs of the medicines?

Your cost for these medicines depends on:

- Your health insurance.
- The dose (amount) of medicine your child needs to take.
- Whether the medicine comes in a generic form.

## Wholesale Prices of Prescription Antipsychotics

Brand Name	Dose	Price per Month for Brand Name*	Drug Name	Price per Month for Generic*
<i>Older Antipsychotics</i>				
Thorazine®	10–75 mg	N/A	Chlorpromazine	\$25–\$45
Haldol®	1–10 mg	N/A	Haloperidol	\$10–\$45
Orap®	0.5–10 mg	\$45–\$310	Pimozide	N/A
<i>Newer Antipsychotics</i>				
Abilify®	2–30 mg	\$660–\$930	Aripiprazole	N/A
Clozaril®; FazaClo®	75–500 mg	\$240–\$1,225	Clozapine	\$115–\$500
Zyprexa®	2.5–20 mg	\$375–\$1,330	Olanzapine	\$335–\$1,215
Invega®	3–12 mg	\$570–\$1,145	Paliperidone	N/A
Seroquel®	25–800 mg	\$110–\$1,155	Quetiapine	\$100–\$1,020
Risperdal®	0.25–6 mg	\$165–\$760	Risperidone	\$120–\$535
Geodon®	40–160 mg	\$550–\$665	Ziprasidone	N/A

\*Prices are the average wholesale prices from RED BOOK Online® rounded to the nearest \$5.

Generic prices are the middle value in the range of prices listed from different manufacturers.

The actual prices of the medicines may be higher or lower than the prices listed here, depending on your health insurance and the manufacturer used by your pharmacy.

N/A = not available



## Ask your child's doctor

- Which medicine are you considering for my child? Why?
- How long will it take for the medicine to start working?
- Which symptoms might the medicine improve and how can we monitor progress?
- What serious side effects should I look for and when should I contact the doctor?
- How much weight might my child gain from taking an antipsychotic? When should I contact you about my child's weight gain?
- Is my child at risk for having high cholesterol, high blood sugar, or diabetes if he or she takes an antipsychotic?
- How long will my child have to take the medicine?
- What will we do if the medicine stops working?
- Are there other treatment options besides medicines? If so, what are they?

## Other questions:

---

---

---

---

---

## Write the answers here:

---

---

---

---

---

## Source

The information in this summary comes from the report *First- and Second-Generation Antipsychotics for Children and Young Adults*, February 2012.

The report was produced by the University of Alberta Evidence-based Practice Center through funding by the Agency for Healthcare Research and Quality (AHRQ).

For a copy of the report or for more information about AHRQ and the Effective Health Care Program, go to [www.effectivehealthcare.ahrq.gov/pedantipsych.cfm](http://www.effectivehealthcare.ahrq.gov/pedantipsych.cfm). Additional information came from the MedlinePlus® Web site, a service of the National Library of Medicine and the National Institutes of Health. This site is available at [www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus).

This summary was prepared by the John M. Eisenberg Center for Clinical Decisions and Communications Science at Baylor College of Medicine, Houston, TX. Caregivers of children taking antipsychotics reviewed this summary.

